Therefore, RE provide better prognosis in HD patients reducing cardiovascular risk, inflammation and loss of muscle mass.

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**EFFECTS OF INTRADIALYTIC RESISTANCE TRAINNING ON FUNCTIONAL CAPACITY, STRENGH AND BODY COMPOSITION IN HEMODIALYSIS PATIENTS**

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Hemodialysis patients (HD) present inflammation, metabolic acidosis and anorexia which contribute to loss of functional capacity, muscle mass and strength. Resistance training (RT) is recognized to reduce these effects on the musculoskeletal system. This study aimed to evaluate the effects of intradialytic RT on the functional capacity, strength and muscle mass in HD patients. Eighteen HD patients (50% men, $49.3 \pm 11.5$ years, BMI $22.7 \pm 3.9$ kg/m$^2$, $63.2 \pm 46.3$ months on dialysis) exercised 3 times a week for 6 months. All parameters were evaluated before and after 6 months of RT. There were significant changes in the functional tests 10-TSS (10 times Sit-to-Stand Test) and SS-60 (amount of sit to stand in 60 seconds), in the muscle mass and % of body fat after RT. The medial and proximal leg circumferences increased significantly and no differences were observed in torque extensor and flexor and distal leg circumferences. In conclusion, RT contributes to improving body composition and functional capacity of HD patients.

| Parameters | Before RT | After RT |
|---|---|---|
| 10-TSS (seconds) | $27.9 \pm 6.4$ | $21.9 \pm 4.1^*$ |
| SS-60 (repetitions) | $26.0 \pm 6.7$ | $28.9 \pm 5.7^*$ |
| Muscle mass - men (kg) | $48.0 \pm 9.1$ | $51.5 \pm 10^*$ |
| Muscle mass - women (kg) | $34.1 \pm 4.4$ | $36.9 \pm 4.9^*$ |
| Body fat - men (%) | $29.2 \pm 5.1$ | $25.3 \pm 5.1^*$ |
| Body fat - women (%) | $34.6 \pm 5.1$ | $32.4 \pm 4.7^*$ |
| LG- Proximal -R (cm) | $53.6 \pm 6.6$ | $55.4 \pm 6.7^*$ |
| LG- Proximal -L (cm) | $52.7 \pm 5.8$ | $54.1 \pm 6.7$ |
| LG- Medial -R (cm) | $46.8 \pm 5.1$ | $48.6 \pm 4.9^*$ |
| LG- Medial -L (cm) | $46.6 \pm 4.4$ | $48.5 \pm 5.4^*$ |

LG- Leg circumference; R-right; L- left;
$^*p < 0.01$.

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**IMPROVING EFFICIENCY OF DIETETIC SERVICES IN CHRONIC KIDNEY DISEASE WITH A CATEGORISED REFERRAL TOOL**

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Over the past 3 years the number of CKD patients attending our renal outpatient service has increased dramatically from under 100 to over 400 patients. In this time dietetic resources within this service have remained unchanged. This has presented challenges for meeting current practice guidelines and has created long waiting lists to see the dietitian.

The aim of this project was to determine the current status of dietetic appointments and reasons for referral. Using this information we proposed to develop a new referral tool and booking procedures to enable clear prioritization of patients and appropriate referral pathways.

A nurses' perceptions questionnaire and a 4-week audit of appointments were conducted. The new referral tool and booking procedures included categorisation of clinical dietetic priority, utilisation of other community dietetic services where appropriate, and explanatory notes of which patients should take priority in fully booked clinics.

At baseline, it was found that 18 of 57 (31.6%) attempts to book dietetic appointments were not successful due to fully booked clinics (7 new and 11 reviews). While 6 of the 11 reviews were for reasons of higher dietetic urgency e.g. hyperkalaemia and malnutrition, 6 out of 7 new referrals were for lifestyle related reasons e.g. obesity, diabetes, and cholesterol. It is felt the new categorised referral tool and pathways will provide better guidance for referral and appropriate use of dietetic resources for CKD management, to be evaluated in early 2012.

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**THE ROLE OF SALIVARY GLANDS IN PHOSPHATE HOMEOSTASIS**

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Hyperphosphatemia is recognized as a contributor to vascular calcification in patients with chronic kidney disease (CKD) and hemodialysis (HD) patients and is independently associated with cardiac mortality. Dietary inorganic phosphorus (Pi) restriction, and the Pi binders are important therapy for dialysis patients with hyperphosphatemia. Recent study reported that salivary secretion of Pi to be an important determinant of hyperphosphatemia in patients with CKD and in those with ESRD under chronic dialysis. In the present study, we investigated the role of type IIb sodium-dependent Pi transporter (Npt2b) on salivary Pi excretion in mice.

The expression of Npt2b protein was detected at the apical side of duct cells in the salivary glands, suggesting that ductal cells appears to be able to reabsorb Pi, thereby modifying the Pi concentration in the final saliva. In wild-type mice (Wt mice) fed a high Pi diet, the levels of plasma and salivary Pi are significantly higher than those in mice fed a low Pi diet.

In Npt2b$^{+/-}$ mice, the salivary Pi concentrations were significantly increased compared with those in Npt2b$^{+/+}$ mice. Npt2b$^{+/-}$ mice with adenine-induced renal failure had low plasma and salivary Pi levels, and plasma creatinine and BUN levels compared with Npt2b$^{+/+}$ mice treated with adenine. In conclusion, Npt2b is involved in Pi secretion by salivary glands.

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**170**

**A MODIFIED MEAL REPLACEMENT PLAN AS WEIGHT LOSS TREATMENT IN CHRONIC KIDNEY DISEASE: A CASE STUDY**

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Low calorie liquid meal replacements can be used to achieve weight loss in obese patients. Many consider renal disease a contraindication to this due to a lack of specific research. The aim of this case study is to illustrate that this therapy can be used effectively in Chronic Kidney Disease (CKD).

After numerous failed weight loss attempts, the multidisciplinary team (Nephrology, Endocrinology, General Practice and Dietetics) decided to trial a 65 year old patient (CKD Stage 3 secondary to Type 2 Diabetes Mellitus requiring insulin) on a modified meal replacement plan. This plan consisted of 3 Optifast meal replacement drinks plus one portion controlled meal, (4MJ and 85g of protein per day). Monitoring included frequent blood glucose self testing, fortnightly blood tests and review by the Dietitian (monthly once stable). The patient was initially unable to exercise due to pain.

At baseline, weight was 157 kg (BMI: 41 kg/m2), waist circumference 155cm and blood biochemistry indicated CKD stage 3b (eGFR: 39 ml/min, Urea: 15.9 mmol/L, Creat: 156 umol/L). After 14 weeks weight had decreased 22 kg (BMI: 35.8 kg/m2), waist circumference had decreased 18 cm and reported pain improved. Insulin requirements approximately halved, and blood biochemistry (eGFR: 42 ml/min, Urea: 15.2 mmol/L, Creat: 147 umol/L) indicated no decline in renal function. With close monitoring a modified meal replacement plan was used successfully in a patient with CKD however prospective randomised trials are required to further investigate this treatment.

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**INFLUENCE OF INTENSIVE EXERCISE ON RENAL FUNCTIONS (RF) AND ADVANCED GLYCATION END-PRODUCTS (AGES)**